

# PATENT SPECIFICATION

(11) 1 224 009

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## DRAWINGS ATTACHED

- (21) Application No. 35576/68 (22) Filed 25 July 1968  
 (45) Complete Specification published 3 March 1971  
 (51) International Classification A 61 f 13/02  
 (52) Index at acceptance A5R 83U  
 (72) Inventor HEINZ MULLER



## (54) WOUND DRESSINGS

- (71) We, BEIERSDORF AKTIENGESELLSCHAFT, a German Company of 2000 Hamburg 20, Unnastrasse 48, Germany, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following

Also, wound dressings in strip form from woven fabrics are known, which are elastically stretchable in only one direction and on which the dressing pad is attached by means of an adhesive layer, in a position spaced from the sides of the carrier strip. Transverse elasticity of the carrier, or elasticity only in a direction

## ERRATA

SPECIFICATION No. 1,224,009

Page 1, line 12, for "dressing" read "dressings"

Page 2, line 14, for "or" read "of"

THE PATENT OFFICE  
 25th May 1971

- manufacture the plaster strips from a porous non-woven random fibre fleece, which carries a pressure sensitive adhesive coat. Such wound plasters, manufactured from random fibre fleece, have certain advantages, especially in regard to softness and flexibility, but have the disadvantage that their edges easily release from the skin surface on movements of the skin, especially in the region of bone joints. This disadvantage apparently flows from the fact that in a random fibrous fleece the single fibres are mostly so firmly stuck together at their crossing and contact points by the application of a binding or dressing agent that a textile surface structure results which is indeed flexible, but of low extensibility.
- Spun fleeces are random fibre fleeces or fibrous mats manufactured according to an electrostatic spinning method. A solution or melt of a thermoplastic filament forming material, as for instance a polyamide is extruded continuously into the form of an endless filament through a spinneret which is placed in an electric field. At a short distance from the spinneret or spinning nozzle the polymerisate filament is split up into a great number of small fibres which fall down in random array on a conveyor belt which is connected to earth and forms a fleece where the fibres are bonded together at their points of contact when they are still in a semi-plastic and semi-tacky condition, either without the use of a bonding agent

SEE ERRATA SLIP ATTACHED

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The invention relates to wound dressings consisting of a carrier material and a dressing pad.

Known wound dressing consist generally of a carrier strip of textile, paper or plastics foil, which is provided on one side with a sticky adhesive layer, which carries a pad of wound-covering material e.g. muslin, cellulose wool, fibrous fleece, or cellulosic sponge. The wound covering material, which serves for directly covering the wound and/or the absorption of secretions from the wound (also called a dressing pad) is generally constructed in the form of a continuous band, and is so fixed on the carrier strip that on both sides of the wound covering material an adhesive zone remains uncovered. The carrier strip may be perforated. The wound-covering material may contain coagulants, bactericides or other substances for the treatment of the wound.

It is known in making wound plasters to manufacture the plaster strips from a porous non-woven random fibre fleece, which carries a pressure sensitive adhesive coat. Such wound plasters, manufactured from random fibre fleece, have certain advantages, especially in regard to softness and flexibility, but have the disadvantage that their edges easily release from the skin surface on movements of the skin, especially in the region of bone joints. This disadvantage apparently flows from the fact that in a random fibrous fleece the single fibres are mostly so firmly stuck together at their crossing and contact points by the application of a binding or dressing agent that a textile surface structure results which is indeed flexible, but of low extensibility.

Also, wound dressings in strip form from woven fabrics are known, which are elastically stretchable in only one direction and on which the dressing pad is attached by means of an adhesive layer, in a position spaced from the sides of the carrier strip. Transverse elasticity of the carrier, or elasticity only in a direction perpendicular to the length of the strip, is achieved, preferably by the use of overwound warp or weft threads since these confer elasticity in only one direction.

According to the present invention there is provided a wound dressing which comprises a carrier strip or sheet of a fibrous fleece provided on one side with an adhesive layer and a dressing pad placed thereon, the carrier strip consisting of a spun fleece which is elastically stretchable in only one direction. Such a wound dressing can take various forms, and, according to a practical embodiment, for example, it can be so constructed that the dressing pad consists in known fashion of a textile strip, which is so attached to the carrier strip that at least on two opposite sides of the dressing pad a free sticky region remains uncovered.

The carrier strip is preferably constructed to be elastically extensible transversely to the textile strip which constitutes the basis of the dressing pad.

Spun fleeces are random fibre fleeces or fibrous mats manufactured according to an electrostatic spinning method. A solution or melt of a thermoplastic filament forming material, as for instance a polyamide is extruded continuously into the form of an endless filament through a spinneret which is placed in an electric field. At a short distance from the spinneret or spinning nozzle the polymerisate filament is split up into a great number of small fibres which fall down in random array on a conveyor belt which is connected to earth and forms a fleece where the fibres are bonded together at their points of contact when they are still in a semi-plastic and semi-tacky condition, either without the use of a bonding agent

SEE ERRATA SLIP ATTACHED

[ ]

or by using only such very small amounts of a bonding agent which are just sufficient to bond the fibres only at the points where they cross each other.

5 Elastic stretchability in only one direction of the spun fleece can be conveniently achieved by means of a shrinking process in this one direction, e.g. by stretching the fleece in a  
10 direction at right angles thereto and setting the fleece in that form. The spun fleece, elastically stretchable in only one direction, is preferably formed of polyamide or polyester fibres, though other synthetic fibres may be  
15 used to produce a spun fleece or similar properties.

The rear side of the carrier strip i.e. the side not provided with adhesive, may be provided with a thin coat of water-repellent material, in order to avoid absorption of water  
20 into the dressing pad on washing the skin in the region of the wound.

The dressing pad is preferably formed of a type of textile which does not show any tendency to stick to the wound surface under the  
25 influence of wound secretions. It may be formed so that the warp threads and/or the weft threads consist of strongly overwound threads, i.e. which will shrink in the presence of wound secretions, the shrinkable threads alternating with non-shrinking threads.

The special advantages which are achieved by a wound dressing according to the invention, lie especially in that with the spun fleece elastically stretchable in only one direction,  
35 the carrier strip, even on wearing for a long time, fits the movements of the skin exceptionally well, even near bone joints, without any loosening of the edges of the dressing from the skin. Thus a good fit on the surface of  
40 the skin, and one of a high degree of stability, is achieved. In addition, the margins of the wound can be drawn together by the elasticity of the dressing.

A further advantage of wound dressings according to the invention lies in the fact that they can be provided so as to be almost inconspicuous. This is particularly the case because the fibrous fleece, compared to transversely elastic textile material for the same  
50 purpose, can be made very thin. Further, a wound dressing according to the invention is less dirt-sensitive than a textile fabric, and, when made of synthetic material, especially a polyamide, tends to be less liquid absorbent  
55 than, for example, conventional cellulose wool textile.

Further, it has been found that by the use of a spun fleece elastically stretchable in one direction a thinner adherent layer of pressure-sensitive adhesive material is made possible,  
60 the adhesive properties being nevertheless maintained at the same level as in known wound dressings with transverse elasticity. Additionally, compared with the use of transversely elastic textiles, the advantage of not  
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inconsiderable material economy is obtained. When a spun fleece of plastics fibres is provided, an even and thorough porosity of the fleece with improved air permeability is attained which gives no or only minimal irritation of the skin located beneath it. A wound dressing according to the invention can be  
70 manufactured considerably more economically than the known wound dressings. In addition, it can be made in any desired colour, in order that it may match the colour of the skin, in known fashion.

A wound dressing according to the invention has, compared to known wound dressings which are elastic only transversely, the advantage of an easier extensibility so that it can  
80 better fellow the movements of the skin, and that the wearer of the wound dressing feels a pull of the dressing less. This results from the fact that compared to the known transversely elastic textiles, a spun fleece elastically stretchable in one direction has better tension and extension characteristics.

A further advantage of the wound dressing according to the invention results from the fact that the wound dressing can be made in the form of a central dressing pad with free standing adhesive strips on both sides on the known and previously used machines for the manufacture of such wound dressings, i.e. the provision  
90 on a layer of a carrier material of a spun fleece elastically stretchable in one direction, of a dressing pad in the form of a strip to give a wound dressing, does not require the use of special machines. In addition, it is possible to carry out the process for the manufacture of a wound dressing strip as a continuous operation since the carrier sheet is only elastic in the transverse direction, while it is relatively inelastic in the longitudinal direction so that,  
100 viewed in the working direction, both the carrier strip and the strip-form dressing pad are relatively non-stretchable. This gives an important advantage in the machine manufacture of such wound dressings, in that it is possible to use a machine, as currently used for the manufacture of plaster strips with dressing pads and with the base layer elastic only perpendicular to the direction of the strip, substantially without any modification of the machine.

Embodiments of the invention are illustrated in the accompanying drawings, in which:

Figure 1 is a plan view of a wound dressing according to the invention in strip form.

Figure 2 is a plan view of an alternative embodiment in which the dressing pad is arranged equally spaced from the adherent edge strips.

Figure 3 shows a section on lines A—B of Figure 1 and 2.

Referring to these drawings, a carrier strip 1 of a spun fleece elastically stretchable in one direction only, which preferably consists of polyamide threads, is provided with an adherent,  
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e.g. a pressure-sensitive adhesive composition layer 2 and fixed on the adhesive is a dressing pad 3.

5 In the embodiment of Figure 1, the wound dressing comprises a dressing pad strip 3 with free side strips at both edges which carry the pressure-sensitive adhesive layer. Such a wound dressing can be continuously manufactured in desired lengths or rolls on conventional machines, and is cut up for use into  
10 desired single wound dressings.

In the embodiment of Figure 2 the dressing pad 3 is arranged spaced on all sides from the edges of the wound dressing, the carrier sheet however being elastically stretchable  
15 only in one direction.

#### WHAT WE CLAIM IS:—

1. A wound dressing which comprises a carrier strip or sheet of a fibrous fleece provided  
20 on one side with an adhesive layer and a dressing pad placed thereupon, the carrier strip consisting of a spun fleece which is elastically stretchable in only one direction.

2. A wound dressing according to claim 1

in strip form wherein the carrier strip is elastically stretchable transversely to the strip. 25

3. A wound dressing according to claim 1 or 2 wherein the fibrous fleece is formed of synthetic polyamide fibres.

4. A wound dressing according to any of claims 1—3 wherein the dressing pad comprises a textile strip which is so fixed on the carrier strip, that a zone of uncovered adhesive remains at least on two opposite sides of the dressing pad. 35

5. A wound dressing according to any of claims 1—4 wherein the side of the carrier strip or sheet remote from the adhesive layer is provided with a thin coat of water-repellent material. 40

6. A wound dressing according to claim 1 substantially as hereinbefore described with reference to the accompanying drawings.

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FIG.1

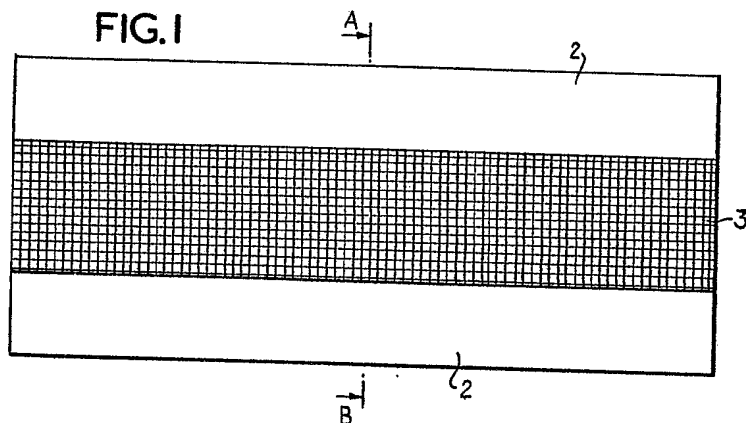


FIG.2

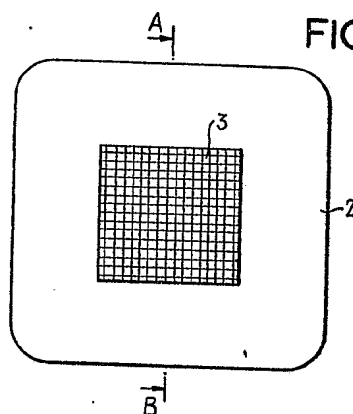


FIG.3

